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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,014	02/11/2004	James A. Laugharn JR.	CVRS-P04-001	2221
7590	03/23/2006		EXAMINER	
Patent Group Ropes & Gray LLP One International Place Boston, MA 02110				SOOHOO, TONY GLEN
		ART UNIT	PAPER NUMBER	
		1723		

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/777,014	LAUGHARN ET AL.
	Examiner Tony G. Soohoo	Art Unit 1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 12-21-2005.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 47-147 is/are pending in the application.

4a) Of the above claim(s) 63-65,80-140,142,144,145 and 147 is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 47-62,66-79,141,143 and 146 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_.

**DETAILED ACTION**

**Election/Restrictions**

1. Newly submitted claims 142-147 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claim 141 is a linking claim which links distinct species which were constructively elected by original presentation by the response to the election requirement filed 6-27-2005, the presentation of a coupling medium and a separate container holding the samples in the reaction vessel is directed to an independent and distinct species directed to the species to the reaction vessel which moves into an out of the apparatus, see claim 91 previously withdrawn.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 142, 144, 145, 147, are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

The pending claims remaining for consideration and examination upon the merits are claims 47-62, 66-71, and 72-79, and 141, 143, 146.

***Specification***

2. Applicant is reminded to continue to update the status of any priority parent applications, if necessary.

***Claim interpretation***

3. Claims 47, 48, 49, 50, 51, 52, and new claims 141, 143, 146 recite “one focused acoustic field” or refers to a “focused acoustic field”. **Applicant describes the terms Focal zone and focal point as: “ [the phrase] ‘Focal zone’ or ‘focal point’ as used herein means an area where sonic energy converges and/or impinges on a target, although that area of convergence is not necessarily a single focused point”.**

The definition as defined by the Merriam-Webster online dictionary defines “focus” as: **focus**

Function: *verb*  
Inflected Form(s): fo·cused also fo·cussed; fo·cus·ing also fo·cus·sing

**transitive senses**

- 1 a : to bring into focus b : to adjust the focus of (as the eye or a lens)
- 2 : to cause to be concentrated <focused their attention on the most urgent problems>
- 3 : to bring (as light rays) to a focus : **CONCENTRATE**

**intransitive senses**

- 1 : to come to a focus : **CONVERGE**
- 2 : to adjust one's eye or a camera to a particular range
- 3 : to concentrate attention or effort

- fo·cus·able ~~•~~/-k&-s&-b&l/ adjective  
- fo·cus·er noun

During patent examination, the claims are given the broadest reasonable interpretation consistent with the specification. See *In re Morris*, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997). In this case, the term “focused” is deemed to

encompass a convergence of the field there is no requirement of a precise focal point, but merely bringing the field into a convergent concentration which may also encompass a focal zone of non precise focal point, as evidenced by claim 49 of a very large focal zone and in claim 62 by the use of plural transducers directed to a focal zone (i.e. in a converging direction), **and applicants own definition of “focal zone” and “focal point” in the specification as “an area where sonic energy converges and/or impinges on a target.”** The “PTO applies to verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant’s specification.”). While the claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. *In re American Academy of Science Tech Center, \*\*>367 F.3d 1359, 1369, 70 USPQ2d 1827, 1834 (Fed. Cir. 2004)<* (The USPTO uses a different standard for construing claims than that used by district courts; during examination the USPTO must give claims their broadest reasonable interpretation.). This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification.

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4. Claims 66-79 attempt to claim the material which is used in the apparatus by the direct recitation of "further comprising one or more samples". The "samples" are the material in which the elements of the apparatus "for treating one or more samples" acts upon once the device is operated. The particular elements of the apparatus "for treating one or more samples" is/are the acoustic energy source transducer (single in claim 47 and plural transducers in claim 62). Thus the claims attempt to claim the material worked upon by the device. Accordingly, the language of claims 66-79 does not structurally distinguish or further limit the scope of the invention and merely provides a discussion of particulars to the intended use of the device as afforded in the preamble of the claim(s).

5. Note: The MPEP states  
MPEP 2115

Material or Article Worked Upon by Apparatus  
MATERIAL OR ARTICLE WORKED UPON DOES NOT LIMIT APPARATUS CLAIMS

"Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). In *In re Young*, a claim to a machine for making concrete beams included a limitation to the concrete reinforced members made by the machine as well as the structural elements of the machine itself. The court held that the inclusion of the article formed within the body of the claim did not, without more, make the claim patentable. In *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967), an apparatus claim recited "[a] taping machine comprising a supporting structure, a brush attached to said supporting structure, said brush being formed with projecting bristles which terminate in free ends to collectively define a surface to which adhesive tape will detachably adhere, and means for providing relative motion between said brush and said supporting structure while said adhesive tape is adhered to said surface." An obviousness rejection was made over a reference to *Kienzle* which taught a machine for perforating sheets. The court upheld the rejection stating that "the references in claim 1 to adhesive tape handling do not expressly or impliedly require any particular structure in addition to that of *Kienzle*." The perforating device had the structure of the taping device as claimed, the difference was in the use of the device, and "the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself." Note that this line of cases is limited to claims directed to machinery which works upon an article or material in its intended use. It does not apply to product claims or kit claims (i.e., claims directed to a plurality of articles grouped together as a kit).

#### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 62, 141, 146, are rejected under 35 U.S.C. 103(a) as being unpatentable over Murry 3614069 in view of Berger et al 5484573.

The reference to Murry 3614069 teaches a reaction vessel 10 with walls 12, 13, in which Murry shows that one may place acoustic transducers 14, 16 connected to the walls 13, 12, see column 5, line 59-60 and as seen, in figure 1 which is spaced away from the sample 11, and which does not touch the liquid (sample) inside the walls of the reaction vessel. The transducers are placed facing one another in an arrangement so as to provide a converging acoustic field along an area about a plane in the vessel. Thus it can be said that the two transducer elements are both focused to a center target plane along the center of the reaction vessel 10 to provide a reaction zone.

There is also a controller 17, 21 may be provided to control corresponding ultrasonic transducers 14, 16 to the frequency of low frequency ultrasonic 10 kilohertz, column 4, line 29 through a high frequency application of up to 10 to 400 megahertz, column 4, line 41, to control the optimization of the production effect of the cavitation, mixing and emulsification of the corresponding fluid, see column 4, lines 32-48. Thus is a finding of fact that the transducers of Murry is structurally capable with a control 17, 21 of operating between the ranges of 100 kilohertz and 100 megahertz if so desired, so that production effect of the cavitation, mixing and emulsification of the corresponding fluid is optimized. Applicant is reminded that the instant claims are apparatus claims

and not method claims. The examiner has pointed out the structure fully capable of such operation as recited by the structure of applicants' "acoustic energy source".

Thus, the Murry reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of having an inlet and out let for flow of the sample fluid 11 into and out of the vessel 10.

The Berger et al reference teaches that a reactor apparatus with a vessel 1 may have an inlet 11, 12, and outlet 8 whereby the walls form a conduit for a flow into and out of the vessel, and may have further plural ultrasonic transducers 15 placed about the vessel in a converging arrangement of the field thereby providing a central focus region inside the volume of the container and having a controller 16 to excite a reaction in the vessel conduit.

In view of the teaching of Berger that a vessel 1 may have inlets and outlets to provide a convenient feed and dispensing of the fluid inside the vessel, it is deemed that it would have been obvious to one of ordinary skill in the art to provide for the reaction vessel 10 with an inlet and outlet so that reacted samples or liquid or (sample material suspension in liquid) may be easily moved into and out of the vessel.

With regards to claim 62, to the use of plurals acoustic transducers to provide plural acoustic fields, It is deemed that it would have been obvious to one of ordinary skill in the art to provide and duplicate multiple transducers as shown by Murry figure 3 and 3, elements 41a-f, or 56a-h, and generators 52-54 so as to provide a more precise field of application of the acoustic energy.

8. Claims 47-49,51-52, 66-79 and 143 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al 5484573 in view of Murry 3614069 and Ganguly et al 4926871.

Berger et al (cited on PTO 1449) teaches reactor apparatus with a vessel 1 with inlet 11, 12, and outlet 8 whereby the walls form a conduit for a flow into and out of the vessel, and plural ultrasonic transducers 15 placed about the vessel in a converging arrangement of the field thereby providing a central focus region inside the volume of the container and having a controller 16.

The Berger et al (cited on PTO 1449) reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of having the ultrasonic transducer and controller providing a field frequency of about 100 kHz to about 100 MHz, and whereby the source is a single transducer (claim 47).

The reference to Murry 3614069 teaches that a controller 17, 21 may be provided to control corresponding ultrasonic transducers 14, 16 to the frequency of low frequency ultrasonic 10 kilohertz, column 4, line 29 through a high frequency application of up to 10 to 400 megahertz, column 4, line 41, to control the optimization of the production effect of the cavitation, mixing and emulsification of the corresponding fluid, see column 4, lines 32-48.

In view of the teaching of Murry, it is deemed that it would have been obvious to one of ordinary skill in the art to modify the controller and transducer of the Berger reference to provide ultrasonic transducers and controller to produce ultrasonic

frequencies of 10 kilohertz through up to 10 to 400 megahertz, so that production effect of the cavitation, mixing and emulsification of the corresponding fluid is optimized.

With regards claims 48-49, to the size of the focused field provided by the ultrasonic transducers focus zone being smaller (claim 48) or larger (claim 49) then the reaction vessel, it is old and well known place field transducers in a focus arrangement and that the focus is a direct variable to the location of the amount of energy provided by the focused field. Accordingly, it is deemed that it would have been obvious to one of ordinary skill in the art to move the placement of the ultrasonic transducers to an appropriate arrangement to provide an optimal focus size in the provision of the ultrasonic energy to the vessel for efficient mixing, or processing of the fluid, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

With regards to the use of a single transducer being an "acoustic energy source", the reference to and Ganguly et al 4926871 (newly cited) teaches that acoustic device may comprise multiple transducer elements may be connected together to produce a single transducer array, or one may alternately utilize a single focused transducer, column 3, lines 30-36. Thus the teaching by the Ganguly et al 4926871 reference shows that it is known in the art of ultrasonic transducer devices, one may use one or more transducer elements, or in the alternative, may use a "single focused transducer", and thereby a known functional equivalent in the art. Thus it is deemed that it would have been obvious to one of ordinary skill in the art to substitute for the plural transducers of

Berger with a single focused transducer arrangement so as to minimize and simplify the number of elements in the device to produce the acoustic field.

With regards to claims 51-52, note the processor 16 of Berger et al which is deemed to be able to be controlled in the manner recited in the claims.

With regards to claims 66-79, the particular material to be used in the device is does not provide any patentable distinction to the elements claimed in the apparatus.

9. Claims 50, and 53-61, are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al 5484573 in view of Murry 3614069 and Ganguly et al 4926871 as applied to claim 47 above, and further in view of Peltzer 5993671.

The Berger reference as modified by Murry discloses all of the recited subject matter as defined within the scope of the claims with the exception of (Claim 50) a controller to control flow of sample into and out of the flow of vessel ; and alternately with the exception of (Claim 54-61) a respective controller and sensor having feed back on the state of the treatment.

The reference to Peltzer 5993671 teaches a mixing system whereby a controller is provided to control both the feed and output flows by the use of valves 20, 22, 24. Also the reference teaches the use of sensors 60, 62, 64, 80, 82, 84 which provides a feedback to the state of the treatment in the mix chamber 12.

In view of the teaching of Peltzer 5993671, it is deemed that it would have been obvious to one of ordinary skill in the art to provide for the device of Berger with a controller with valves connected at the input and output so as to provide a more precise

control of the mixture ratio to be processed, and further provide a sensor in order to monitor the state of the treatment of the mixture in the mixing chamber. With regards to particular type of sensor to be used, it is old and well known in the art of sensor devices that various sensors may be provided to monitor a desired characteristic, accordingly, it is deemed that it would have been obvious to one of ordinary skill in the art to substitute and provide any commonly known sensor in correspondence to the desired characteristic which is to be monitored.

***Response to Arguments***

10. Applicant's arguments filed 12-21-2005 have been fully considered but they are not persuasive. Applicant has added new limitations to the provision of a single focused transducer (claim 47) and the acoustic source not being in contact with the sample (claims 141).
11. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony G. Soohoo whose telephone number is (571) 272 1147. The examiner can normally be reached on 7-5PM,Tue-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tony G Soohoo  
Primary Examiner  
Art Unit 1723